

**A PORTABLE LII BASED INSTRUMENT AND METHOD FOR
PARTICULATE CHARACTERIZATION IN COMBUSTION EXHAUST**

Abstract of the Disclosure

An improved instrument and method are provided for particulate characterization in combustion exhausts. An instrument for measuring particles of combustion exhausts includes a laser for producing a high intensity laser pulse. A sample cell receives a combustion exhaust input and the high intensity laser pulse. At least one detector detects a signal generated by particles in said received combustion exhaust input. The detected signal includes laser induced incandescence (LII). Signal conditioning electronics is coupled to the detector and particle data is displayed during transient operation of a combustion engine. Data related to mass concentration, number density, and particle size of particles in the received combustion exhaust input is measured and displayed.

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